No. 7600065

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT TY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SP THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'S76'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 29th *day of* October *in the year of our Lord one thousand nine hundred and* seventy-six

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(12-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION	2. KIND NAME	FOR OFFICIAL USE ONLY
S76	wheat	PV NUMBER 7600065
3. GENUS AND SPECIES NAME	4. FAMILY NAME *(Botanical)*	FILING DATE 3.30.76 / TIME 1 P.M.
Triticum aestivum	gramineae	FEE RECEIVED $ 250.00 $ 250.00 $ 250.00 / BALANCE DUE $ — $ — $ —
	5. DATE OF DETERMINATION July 1, 1972	

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
Pioneer Hi-Bred Int'l., Inc. Plant Breeding Division	Hutchinson Cereal Seed Research Station Route #2 Hutchinson, Kansas 67501	A.C. (316) 662-5439

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	Iowa	May, 1926

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Dr. Charles Hayward
PIONEER HI-BRED INTERNATIONAL, INC.
Plant Breeding Division
Hutchinson Cereal Seed Research Station
Route #2
Hutchinson, Kansas 67501

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Botanical Description of the Variety
- [X] 13C. Exhibit C, Objective Description of the Variety
- [X] 13D. Exhibit D, Data Indicative of Novelty
- [X] 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [X] YES [ ] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? [X] FOUNDATION [X] REGISTERED [X] CERTIFIED

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

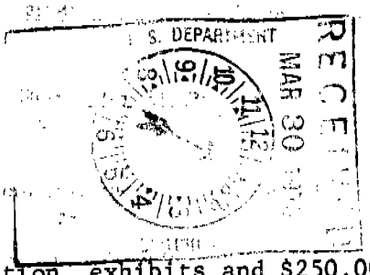
Applicant is informed that false representation herein can jeopardize protection and result in penalties.

March 23, 1976
(DATE)

Charles F. Hayward
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)



INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, 6525 Belcrest Road, Hyattsville, Maryland 20782. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety based on the definition in Section 41 (a) of the Act and decision is made to increase the seed.

13a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.

13b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.

13c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

13d Provide complete data indicative of novelty. Seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty may be submitted. Seeds submitted may be sterile.

13e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.

13A. Exhibit A. Origin and Breeding History of S76 Wheat

S76 was developed by Pioneer Hi-Bred International, Inc., Plant Breeding Division, Hutchinson Cereal Seed Research Station, Route 2, Hutchinson, Kansas.

The abbreviated parentage of S76 is: Etoile de Choisy//Thorne/Clarkan/3/CI13390 Pawnee/CI12454/4/Pd.4946A4-18-2. A semidwarf mutant was selected from the Etoile de Choisy//Thorne/Clarkan cross. This mutant was crossed to CI13390. A pure line selection from this cross was crossed to Pd4946A4-18-2 in 1967.

Procedure in developing S76 from the time of the final cross is as follows:

1967.....F_1 generation

1968.....F_2 generation space planted and plant selections made.

1969.....F_3 generation, plant selections grown in increase rows at Kansas and Illinois. Head selections were taken from the increase rows.

1970.....F_4 generation, head rows were grown in Illinois.

1971.....F_5 generation, increase rows were grown from selected 1970 head rows- in Missouri.

1972.....F_6 generation, seed from selected increase rows were planted in preliminary yield trials in Kansas, Missouri and Indiana. Quality evaluations were made by our cereal chemist.

1973.....F_7 generation, best performing lines from the preliminary yield trials were grown in advanced yield trials in Kansas, Missouri and Indiana. Milling and baking studies of the Missouri and Indiana tests were conducted by two independant laboratories as well as our own.

1974.....F_8 generation, the best performing F_7 lines, based on field and milling and baking quality data, were grown in elite yield trials in Kansas, Missouri, Illinois and Indiana. Quality evaluations were made similar to those in 1973. Preliminary increase of the line W610 was made in Indiana and Kansas.

1975.....F_9 generation, elite yield trials were continued in Kansas, Missouri, Illinois and Indiana with observation plots of W610 grown in Ohio, Maryland, and Kentucky. Quality evaluations were repeated as in 1973 and 1974. Five acres of increase were seeded in Kansas and 1375 acres in Indiana in the fall of 1975. The name S76 was selected for the line W610 with sales to begin in 1976.

While S76 has been quite uniform, a small number of awnless or awnletted (1/1000) and a small number of taller plants (1/1000) can be expected. Uniformity can be expected since common wheat is recognized as almost completely self-pollinated.

Observation plots are currently being grown in different locations in the states of Indiana, Ohio, Michigan, Pennsylvania, Maryland, Delaware, Virginia, Tennessee, Kentucky, North Carolina, South Carolina, Alabama and Georgia.

13B. Exhibit B. Botanical Description of S76

S76 is a common soft red winter wheat, Triticum aestivum L.

S76 averaged two days later than Arthur 71 in flowering in nursery trials in 1973-74. At Tipton, Indiana when seeded about October 1, the average first flowering is May 28 or about 230 days after emergence. Last flowering averages about six days later. Environmental factors influence flowering of varieties differently.

S76 has averaged 96 cm. in height, about 8 cm. shorter than Arthur 71 and 18 cm. shorter than Stoddard (Table 1).

At booting stage the plant color of S76 is green, similar to Arthur 71.

Anther color is yellow like Arthur.

Anthocyanin has been absent in stem samples of S76. A light waxy bloom occurs on the stem, becoming less apparent after flowering. Auricles are normally glabrous and generally lacking in anthocyanin. Internodes of S76 are hollow. Stems are very strong as evidenced by the small amount of lodging that occurs (Table 1). Stems are yellow at maturity. Normally four stem nodes are present above ground. Internode length between flag leaf and leaf below is 23 cm.

Auricles of S76 are absent of anthocyanin and a small amount of hairiness is frequently evident.

Leaves are green at booting stage. The flag leaf varied from semierect to recurved at booting and gradually becomes more recurved after booting. Flag leaves are generally not twisted but some slight twisting has been observed following the booting stage. Hairs have not been observed on the first leaf sheath. A moderate amount of waxy bloom occurs on the last leaf sheath. The first leaf below the flag leaf averages about 10 mm. wide and 25 cm. long.

Spikes are mid-dense (lax), fusiform, awned, white to light yellow and generally nodding at maturity. Awns are rough and six to eight cm. in length.

The spike width averages about 1.2 cm. wide and 9 cm. long. However, both spike width and length are variable with seed population rates and level of production. Glumes are mid-wide and long, sometimes medium long are observed, with wanting shoulders. Beaks are acuminate.

Coleoptile color is white. Seedling anthocyanin is absent when evaluated at Hutchinson, Kansas.

Kernels are red in color, ovate in shape, with rounded cheeks and a mid-deep crease. Kernels tend to be longer and more narrow than most soft wheats, tending to be shaped more like the soft wheat 'Hart' and the hard wheat 'Parker'. The brush is medium in size and mid-long. The embryo is medium in size. Kernels average 7 mm. long and 3 mm. wide and 1,000 kernels weigh about 32 gm. Phenol reaction is between a dark brown and black.

S76 has not been tested for Hessian fly, sawfly, and aphids.

S76 is susceptible to loose smut, powdery mildew and stem rust. It has not been tested for stripe rust, which does not appear to be a problem in the soft wheat area. It has shown a high degree, tolerance to resistance, to the leaf rust races present in the areas where S76 has been grown (trace to 20%).

S76 has an excellent yield record when compared with currently grown soft red winter wheats (Table 1). It has excelled in resistance to lodging, due to its shortness and straw strength (Table 1).

The milling and baking qualities of S76 compare favorably with the widely accepted currently grown varieties. These data are given in Tables 2 and 3.

FORM APPROVED. OMB NO. 40-R3712

FORM GR-470-6
(2-15-73)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)

Pioneer Hi-Bred International, Inc.

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*

Plant Breeding Division
Hutchinson Cereal Seed Research Station
Route #2
Hutchinson, Kansas 67501

FOR OFFICIAL USE ONLY

PVPO NUMBER

VARIETY NAME OR TEMPORARY DESIGNATION

S76

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:

[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

[2] 1 = SPRING 2 = WINTER 3 = OTHER *(Specify)* _____ [1] 1 = SOFT 2 = HARD 3 = OTHER *(Specify)* _____

[2] 1 = WHITE 2 = RED 3 = OTHER *(Specify)* _____

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

[2][3][0] FIRST FLOWERING [2][3][6] LAST FLOWERING

4. MATURITY *(50% Flowering)*:

[ ][ ] NO. OF DAYS *EARLIER* THAN ..... [ ] 1 = ARTHUR 2 = SCOUT 3 = CHRIS

[0][2] NO. OF DAYS *LATER* THAN ..... [1] 4 = LEMHI 5 = NUGAINES 6 = LEEDS

5. PLANT HEIGHT *(From soil level to top of head)*:

[0][9][6] CM. HIGH

[ ][ ] CM. TALLER THAN ..... [ ] 1 = ARTHUR 2 = SCOUT 3 = CHRIS

[0][8] CM. SHORTER THAN ..... [1] 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING *(See reverse)*:

[2] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:

[1] 1 = YELLOW 2 = PURPLE

8. STEM:

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[2] Waxy bloom: 1 = ABSENT 2 = PRESENT

[1] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT

[1] Internodes: 1 = HOLLOW 2 = SOLID

[0][4] NO. OF NODES *(Originating from node above ground)*

[2][3] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[1] Hairiness: 1 = ABSENT 2 = PRESENT frequently small amounts observed

10. LEAF:

[2] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER *(Specify)*: _____

[1] Flag leaf: 1 = NOT TWISTED 2 = TWISTED

[1] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT

[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT

[1][0] MM. LEAF WIDTH *(First leaf below flag leaf)*

[2][5] CM. LEAF LENGTH *(First leaf below flag leaf)*:

13D. Exhibit D. Data Indicative of Novelty

S76 is awned while nearly all, if not all, commercially grown soft red winter wheats are awnless, awnleted or apically awnleted, with the exception of a new variety that is being released by Missouri, Hart, that is awned. It was indicated to the National Small Grain Variety Review Board that Hart would not be submitted to the Plant Protection Office, but S76 more nearly has the appearance of Hart than any other soft wheat. This, no doubt, is due to the fact that S76 has the same pedigree as Hart as one parent, but the selection we used from the pedigree was then crossed to an awnless Purdue line, Pd4946A4-18-2, in 1967. To distinguish S76 from Hart, Hart has a coleoptile color of all purple in the field and three-fourths light purple and one-fourth green by chamber evaluation, whereas S76 has a white coleoptile color by chamber evaluation. It has been stated that Hart is resistant to loose smut, whereas S76 is susceptible. Hart is classified as having a tapering head while S76 is more fusiform. Further, Hart has been classified as being absent of waxy bloom of the flag leaf sheath, whereas there is a small amount of waxy bloom on the flag leaf sheath of S76.

S76 is shorter than most currently grown soft red winter wheats and excels over most soft wheat varieties in lodging resistance (Table 1)

Phenol reaction (dark brown to black) and the absence of anthocyanin in the stem and auricles should be of value in separating S76 from many other soft red winter wheats. Also, under our tests there is an absence of purple and red color in the coleoptile while many varieties exhibit color.

The kernels of S76 are longer and more narrow than most soft red winter wheats.

Additional information provided in Tables 1 through 3 and Exhibits 13B and 13C should also help in identifying S76.

Variants of S76 that can be expected are: a small number of awnless or awnleted (1/1,000) and a small number of taller plants (1/1,000).

13E. Exhibit E. Statement of the Basis of Applicant's Ownership

Pioneer Hi-Bred International, Inc., Plant Breeding Division, believes it is the sole, original and first breeder of the 'S76' variety of wheat for which it solicits a certification of protection.

FORM GR-470-6 (REVERSE)

11. HEAD:

[1] Density: 1 = LAX 2 = DENSE

[4] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify) fusiform

[4] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[7] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER (Specify): white to light yellow

[0][9] CM. LENGTH

[1][2] MM. WIDTH

12. GLUMES AT MATURITY:

[3] Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)

[2] Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)

[1] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[3] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[1] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[2] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[1] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

[2] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[5] Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK (between dark brown and black

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify)

[0][7] MM. LENGTH

[0][3] MM. WIDTH

[3][2] GM. PER 1000 SEEDS

17. SEED CREASE:

[1] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[2][1] RPE Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[1] STEM RUST (Races)

[2] LEAF RUST (Races) prevalent races where grown

[0] STRIPE RUST (Races)

[1] LOOSE SMUT

[1] POWDERY MILDEW

[0] BUNT

[ ] OTHER (Specify)

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] SAWFLY

[0] APHID (Bydv.)

[0] GREEN BUG

[0] CEREAL LEAF BEETLE

[ ] OTHER (Specify)

HESSIAN FLY RACES: [0] GP [0] A [0] B [0] C [0] D [0] E [0] F [0] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Arthur	Seed size	Oasis
Leaf size	Abe - but longer	Seed shape	Hart
Leaf color	Abe	Coleoptile elongation	Arthur 71
Leaf carriage	Abe	Seedling pigmentation	Redcoat

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. *(See attachment.)*

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

Per letter of 4-7-76

Table 1. Performance of S76 and standard varieties in elite yield trials. Average of two years, four states, 1973-75.

	Ht. in.*	Lodging % **	Leaf Rust *	Yield bushels per acre				Avg. Yield	Avg. test wt.
				Kansas	Missouri	Illinois	Indiana		
W610 = S76 RMC	96	5	MR	50.8	44.7	48.8	40.4	46.2	57.8
Arthur 71	104	64	R	43.3	38.9	40.6	32.7	38.9	59.2
Abe	102	59	R	50.0	41.3	41.5	34.1	41.8	58.6
Oasis	107	39	R	43.8	40.9	39.7	32.1	39.1	59.9
Stoddard	114	34	MR	43.1	41.1	38.1	34.7	39.3	59.7

* Height and leaf rust measurements at Hutchinson, Kansas only

** Lodging at Loogootee, Illinois only

Table 2.

According to the results of testing conducted by the Pioneer Quality Laboratory and two independent soft wheat laboratories, the quality of S76 is generally equivalent to standard varieties currently in use in the soft wheat area and should help maintain present quality standards.

Results of Quality Testing on S76 (W610)

1. Pioneer Quality Lab Results

Avg. '72 Data	Flour Yield (%)	Break Flour (%)	Flour Protein (%)	AWRC (%)	Cookie Diam. (cm.)
S76	68.7	37.6	10.6	52.7	19.2
Arthur 71	73.7	40.2	12.0	52.7	19.0
Avg. Check	72.6	41.2	11.5	51.9	19.0
Avg. '73 Data					
S76	64.5	35.8	12.1	52.8	19.0
Arthur 71	67.8	38.6	11.8	55.5	19.6
Avg. Check	67.2	38.0	11.9	52.5	19.3
Avg. '74 Data					
S76	63.9	36.7	10.5	58.3	19.4
Arthur 71	64.1	36.6	11.6	55.5	18.9
Avg. Check	65.0	37.4	11.1	55.0	19.1
Avg. '75 Data					
S76	67.3	37.9	8.7	54.1	19.5
Arthur 71	68.6	39.8	9.3	51.9	19.8
Avg. Check	68.4	39.3	9.3	53.0	19.6

Notes:

Locations tested include: Carrollton and Sikeston, Missouri; Tipton and Vincennes, Indiana; and Loogootee, Illinois.

Check samples include various combinations of: Abe, Arthur, Arthur 71, Benhur, Blueboy, Blueboy II, Monon, Oasis, Stadler and Stoddard.

Methods: Milling - Quadramat Sr. Mill
Protein - Udy method
AWRC - micro method on milled flour
Cookie diameter - total diameter of two cookies

Table 3.

Results of Quality Testing on S76 (W610)

2. Results from Other Labs

Other Lab A

Avg. '73 Data	Wheat Protein (%)	Particle Size Index (%)	AWRC (%)	Cookie Diam. (cm.)	Top Grain
S76	12.7	24.0	62.2	17.5	5
Arthur 71	12.6	28.2	62.5	17.7	5.5
Avg. Check	12.6	26.8	60.8	17.6	5.4 (range = 4 - 7)
Avg. '74 Data					
S76	11.1	27.6	64.4	17.5	--
Arthur 71	12.3	30.5	66.0	17.2	--
Avg. Check	12.7	30.7	64.5	17.4	--
Avg. '75 Data					
S76	9.7	25.3	62.2	--	--
Arthur 71	10.0	31.1	60.7	--	--
Avg. Check	10.0	28.9	60.6	--	--

Other Lab B

Avg. '73 Data	Flour Protein (%)	Viscosity	Ash	Spread Factor (w/t)
S76	10.14	88	.343	9.29
Arthur 71	10.92	109	.387	9.05
Avg. Check	10.78	95	.382	9.24
Avg. '74 Data				
S76	8.92	65	.388	7.74
Arthur 71	9.94	72	.408	8.66
Avg. Check	10.35	102	.410	8.41
Avg. '75 Data				
S76	7.80	52	.364	9.28
Arthur 71	8.45	64	.365	9.91
Avg. Check	8.42	59	.380	9.57

Notes: Cookie testing at Lab A and all testing at Lab B was conducted on flour milled by Pioneer.

Locations tested include: Carrollton, Missouri; Loogootee, Illinois; and Vincennes, Indiana.